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Comparative Study of Digital Gold and Physical Gold as Investment Options

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ABSTRACT :

This paper compares digital gold and physical gold as investment options, looking at cost, liquidity, purity assurance, trust and who is adopting each. The study is a cross-sectional survey of 100 respondents (students, salaried employees, business owners and others), analysed with simple percentages and mean agreement scores on a five-point Likert scale. Most respondents were young (65% aged 35 or below) and lived in urban or semi-urban areas (83%).

Digital gold was the most preferred single format (38%), followed by holding both (31%) and physical gold (24%). Respondents agreed most strongly that digital gold is convenient, lets them invest small amounts and removes storage worries (all above 80%). Trust was the weak spot: only 51% trusted digital platforms, and 74% acknowledged platform and counterparty risk. Physical gold kept a strong cultural place (90% agreement), but many saw making charges (81%) and storage costs (68%) as a burden.

The study concludes that a mix of the two works best for retail investors: digital gold for flexible, gradual buying and physical gold for cultural and long-term security needs, as long as platform regulation and custody transparency improve.

Keywords: Digital Gold; Physical Gold; Gold Investment; Investor Preference; Making Charges; Liquidity; Counterparty Risk; Retail Investors.

1. Introduction

Gold has long been seen as a dependable store of value, a hedge against inflation and a safe place to park money when markets are shaky or the world feels unsettled. For most of history people bought it in physical form: bars, coins and, above all, jewellery. Financial technology has since added digital gold, along with paper-based options such as Gold Exchange-Traded Funds (ETFs), Sovereign Gold Bonds (SGBs) and tokenized gold. These products change an old habit, because an investor can now be exposed to the gold price without actually holding any gold.

The two formats differ a lot in how they work and what they cost:

- **Physical Gold:** You own something you can hold, there is no counterparty or system risk, and it carries cultural value. The downsides are real, though: making or minting charges that run from about 3% to over 20%, storage or locker fees, insurance, a discount when you resell, and the risk of theft or doubts about purity.
- **Digital Gold:** You can buy a fraction of a gram, there is nothing to store because the gold sits in an insured third-party vault, purity is certified at 99.9% (24-karat), and you can sell at any hour at the live market rate. On the other hand, you depend on the platform and its systems, you take on counterparty risk, the regulatory position is unclear, and you may pay transaction fees or a buy-sell spread.

Comparing investor preferences, costs, safety and liquidity across the two formats matters for anyone managing money today. As more retail investors move onto digital platforms, banks, regulators and investors themselves need a clear way to judge what physical and digital gold actually offer once both risk and return are taken into account.

2. Review of Literature

Baur & Lucey (2010) studied physical and exchange-traded gold as a safe haven and a hedge against stocks and bonds. They found that gold cushions

investors against short-term market falls, but holding physical bullion brings holding costs that eat into long-term returns compared with paper or exchange-cleared alternatives.

Mishra, Dash, & Mishra (2020) looked at how retail consumers in emerging markets view gold buying. Older people tend to stay attached to physical gold because it feels secure and plays a role in gifting, while younger and urban buyers are moving to digital platforms for convenience, clear pricing and the freedom to invest small amounts.

Shafiee & Topal (2010) reviewed how gold prices have behaved over time and how people acquire gold. They pointed out that physical gold deals involve wide bid-ask spreads, local dealer premiums and losses from melting or assaying, all of which cut into returns compared with standardised financial instruments.

Baur, Hong, & Lee (2018) compared digital assets, tokenized commodities and physical precious metals. They found that digital gold makes trading faster, access easier and storage simpler, but it moves the risk onto the platform's custody arrangements, the custodian's solvency, and smart-contract and cyber weaknesses.

Arouri et al. (2015) tested asset allocation models that mix conventional and securitized precious metals. Portfolios built with liquid, low-fee digital and exchange-traded gold earned better risk-adjusted (Sharpe) ratios than portfolios weighed down by the storage and insurance costs of physical bullion.

Goyal & Joshi (2021) studied why consumers adopt digital gold apps on retail fintech platforms. The main drivers were transparent real-time prices, the option to buy in very small amounts, and easy payment through UPI and digital wallets, which together pulled buyers away from traditional jewellery shops.

Beckmann, Berger, & Czudaj (2015) examined whether gold hedges against inflation across different monetary regimes. Both physical and electronic gold follow spot prices closely, but digital holdings let investors rebalance quickly during inflation shocks without the delays of transporting or liquidating physical gold.

Vaidyanathan (2013) analysed the social, economic and structural side of physical gold accumulation in Asian markets. The study noted that gold works as a parallel financial safety net, but problems such as unorganised jeweller spreads, no uniform purity testing (hallmarking) and the risk of theft put an unnecessary drag on small savers.

O'Connor et al. (2015) surveyed the financialization of gold and the structure of the gold market. They noted that the shift from physical bars to digitised, vaulted and sovereign-backed securities opened gold ownership to many more people by sharply lowering the minimum amount needed to take part.

Ammous (2018) compared physical gold, fiat currency and digital assets as stores of value. The author argued that physical gold cannot be censored and carries no systemic counterparty risk, whereas digital forms depend on institutional trust, clear regulation and reserves that can be audited.

3. Research Gap

The literature has looked closely at physical gold as a hedge against inflation, and at Sovereign Gold Bonds (SGBs) and Gold ETFs at the institutional level. Three gaps remain:

- **Direct Comparative Cost-Benefit Analysis:** Few studies measure total net yield in detail for physical retail gold (with local making charges, GST, loss of purity and locker costs) against digital gold platforms (with buy-sell spreads, custody fees and the premium for physical delivery).
- **Demographic & Behavioural Shifts in Emerging Markets:** Little is known about how Tier-2 and Tier-3 investors weigh their attachment to physical jewellery against the easy, small-amount buying that fintech digital gold offers.
- **Regulatory & Custodial Risk Modeling:** There are too few empirical studies of counterparty and custodian failure in fintech-led digital gold, which operates outside the formal clearing systems of the central bank or stock exchanges.

4. Objectives of the Study

- To compare the total costs of buying and holding physical and digital gold, including making charges, storage, insurance, bid-ask spreads and redemption costs.
- To assess how digital gold platforms compare with physical bullion and jewellery retailers on liquidity, purity verification and ease of trading.
- To understand what drives investor preferences and the adoption of digital gold over physical gold among retail investors, including demographic factors.
- To build a practical, risk-aware framework that helps individual investors and financial advisors decide how to split their money between physical and digital gold.

5. Conceptual Framework of the Study

The conceptual framework shows how investor demographics, platform features and economic factors shape the choice between digital and physical gold, and how a sound allocation helps protect household and portfolio wealth over the long run.

Investor demographics (age, gender, occupation, income and place of residence) and platform and economic factors (making charges, storage and insurance, liquidity, live pricing and purity assurance) together shape the choice between physical gold, digital gold or both. That choice affects cost efficiency, liquidity, convenience, trust and security, and in the long run portfolio allocation and household wealth preservation. Digital literacy, trust in

platforms, regulatory risk and cultural attachment act as moderators.

Conceptual Framework of the Study

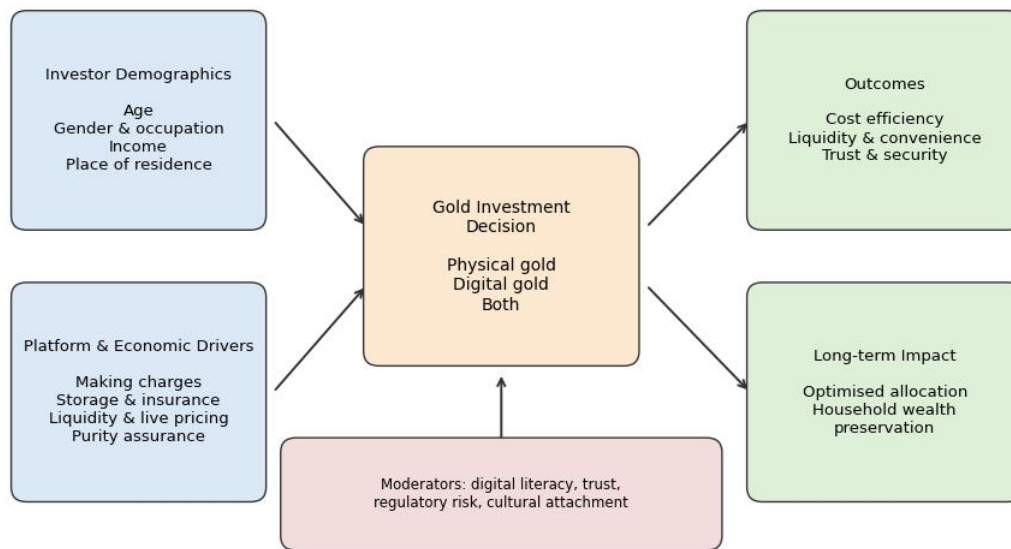


Figure 1: Conceptual framework of the study

6. Hypotheses of the Study

- **H01:** Digital gold does not give higher net returns than physical gold jewellery or coins over holding periods under 5 years, and costs (making charges, storage and assaying losses) do not differ materially between the two formats.
- **H11:** Digital gold gives significantly higher net portfolio returns than physical gold jewellery or coins over holding periods under 5 years, mainly because it avoids high making charges, storage expenses and purity assaying losses at the time of sale.
- **H02:** Investor age, digital literacy and target capital size do not significantly moderate the choice of gold format.
- **H12:** Investor age, digital literacy and target capital size significantly moderate the choice of gold format: younger and urban investors are more likely to choose fractional digital gold, while older investors prefer physical gold for reasons of trust and cultural use.

7. Research Methodology

7.1 Research Approach

A quantitative approach is used because investor perceptions are recorded as numbers, through categorical questions and five-point Likert scales, and statistical summaries help bring out patterns in preferences.

7.2 Research Design

The study is a descriptive and analytical cross-sectional survey. The descriptive part profiles the respondents and how they invest in gold; the analytical part compares perceptions of digital and physical gold and looks at how preference changes with age.

7.3 Population of the Study

The population is made up of retail investors and potential investors who buy, hold or are thinking of buying gold in physical or digital form. It includes students, salaried employees, business owners, the self-employed and retired persons.

7.4 Sample of the Study

The sample is 100 structured survey responses, enough for frequency analysis and for spotting broad patterns of preference. Questions 8 to 10 are about investing behaviour and apply only to respondents who have invested in gold (n = 78).

7.5 Sampling Technique

Non-probability convenience sampling was used. Respondents came from the researcher's own network and from online groups.

7.6 Sources and Instrument of Data Collection

Primary data were collected with a structured questionnaire of 30 items (given in the Appendix), divided into five sections: A, demographic details (Q1-Q5); B, gold investment behaviour (Q6-Q10); C, perceptions of digital gold (Q11-Q20); D, perceptions of physical gold (Q21-Q25); and E, comparison and preference (Q26-Q30). Sections C and D use a five-point Likert scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Secondary data came from the literature reviewed in Section 2.

7.7 Variables and Measurement

The main variables are age, gender, occupation, income and residence (demographic); type, frequency, purpose and amount of gold investment (behavioural); agreement with statements on digital and physical gold (Likert); and preferred format, most important selection factor and intention to increase digital gold holdings (preference).

7.8 Statistical Tools Used

Frequencies and percentages describe the sample and the categorical responses. For Likert items, the mean score and the percentage of respondents who agree or strongly agree (scores 4 and 5) are reported. A cross-tabulation of preferred format against age group is used to examine Hypothesis H12.

7.9 Ethical Considerations

Participation was voluntary. Respondents were told the data would be used only for academic research, and no personally identifiable information was collected or reported.

8. Data Analysis and Interpretation

Placeholder data: the counts below are illustrative values for n = 100 and must be replaced with the actual survey responses.

8.1 Respondent Profile

Table 1: Demographic Profile of Respondents (n = 100)

Variable	Category	Frequency	Percentage
Age (years)	Below 25	34	34%
	26-35	31	31%
	36-45	18	18%
	46-55	11	11%
	Above 55	6	6%
Gender	Male	56	56%
	Female	42	42%
	Other	1	1%
	Prefer not to say	1	1%
Occupation	Student	30	30%
	Salaried	36	36%
	Business	14	14%
	Self-employed	12	12%
	Retired	4	4%
	Other	4	4%
Monthly income (Rs.)	Below 25,000	32	32%
	25,001-50,000	33	33%
	50,001-1,00,000	24	24%
	Above 1,00,000	11	11%

Variable	Category	Frequency	Percentage
Residence	Urban	52	52%
	Semi-urban	31	31%
	Rural	17	17%

The sample is young: 34% are below 25 and 31% are 26-35, so 65% are 35 or below. Salaried employees (36%) and students (30%) are the largest groups, 65% earn up to Rs. 50,000 a month, and 52% live in urban areas against 17% in rural areas. Men make up 56% and women 42%.

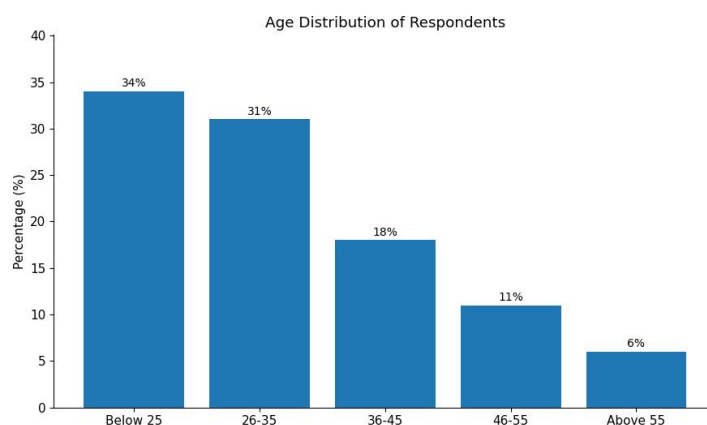


Figure 2: Age distribution of respondents

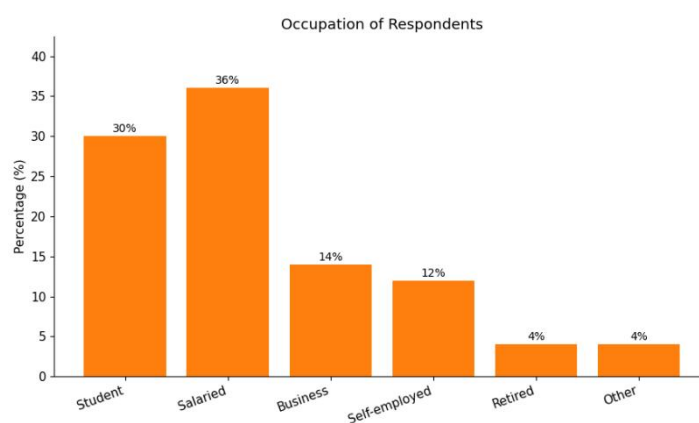


Figure 3: Occupation of respondents

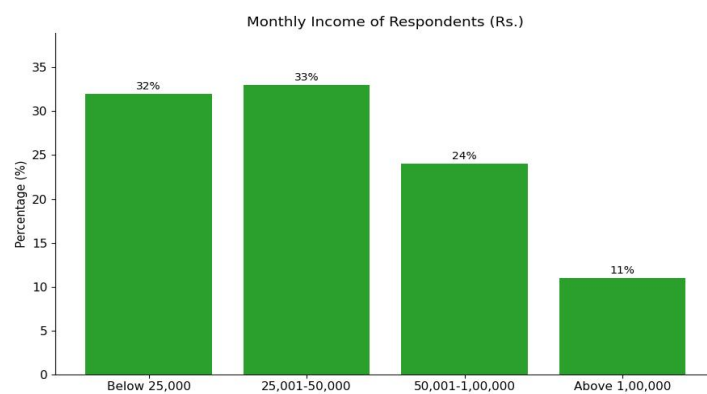


Figure 4: Monthly income of respondents

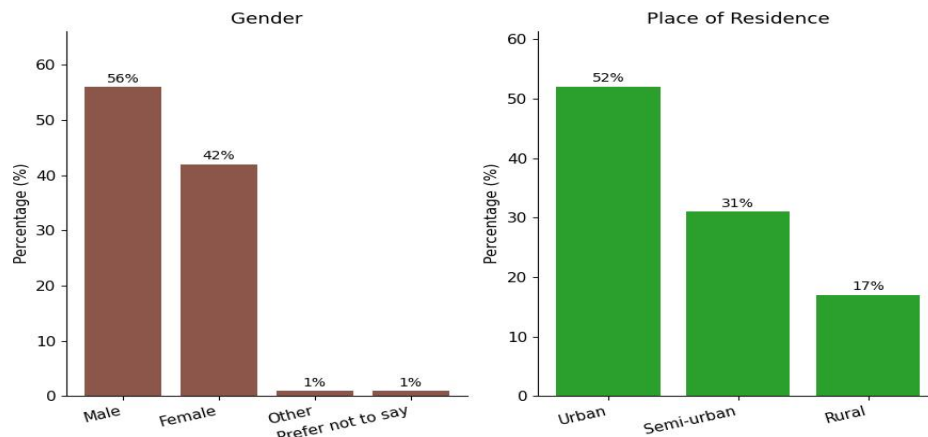


Figure 5: Gender and place of residence of respondents

8.2 Gold Investment Behaviour

Table 2: Gold Investment Behaviour

Variable	Category	Frequency	Percentage
Type of gold invested (n = 100)	Physical gold	33	33%
	Digital gold	14	14%
	Both	31	31%
	None	22	22%
Frequency (investors, n = 78)	Monthly	10	13%
	Quarterly	13	17%
	Yearly	20	26%
	Occasionally	35	45%
Main purpose (investors, n = 78)	Wealth creation	12	15%
	Safety/Security	21	27%
	Inflation protection	13	17%
	Jewellery/Cultural	20	26%
	Diversification	12	15%
Typical amount, Rs. (investors, n = 78)	Below 5,000	22	28%
	5,001-10,000	18	23%
	10,001-25,000	19	24%
	25,001-50,000	12	15%
	Above 50,000	7	9%

78% of respondents have invested in gold before. Across all respondents, 33% have held only physical gold, 14% only digital gold and 31% both. Most investors buy occasionally (45%) or yearly (26%), and only 13% invest every month. Safety and security (27%) and jewellery or cultural reasons (26%) are the most common motives, well ahead of wealth creation (15%). Ticket sizes are small: 51% of investors usually spend up to Rs. 10,000.

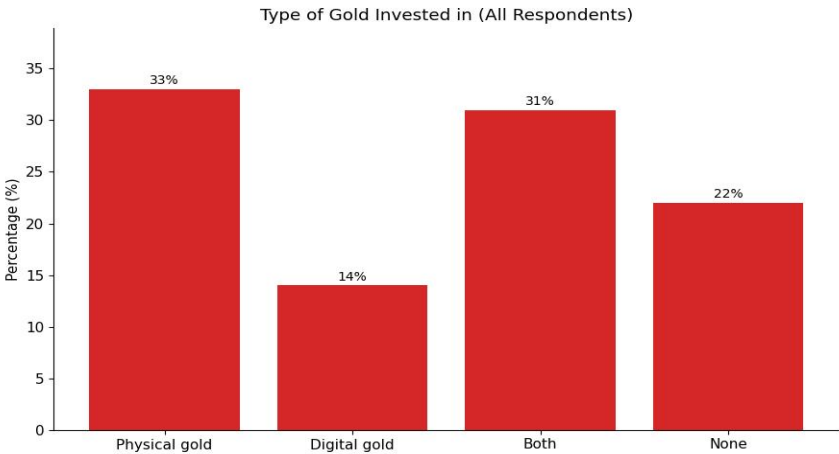


Figure 6: Type of gold invested in

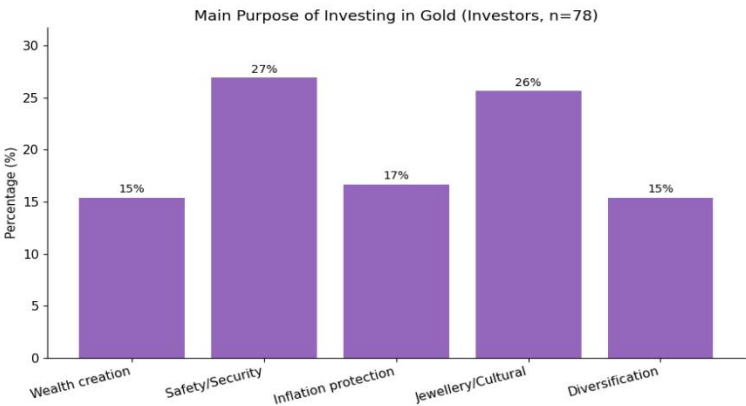


Figure 7: Main purpose of investing in gold

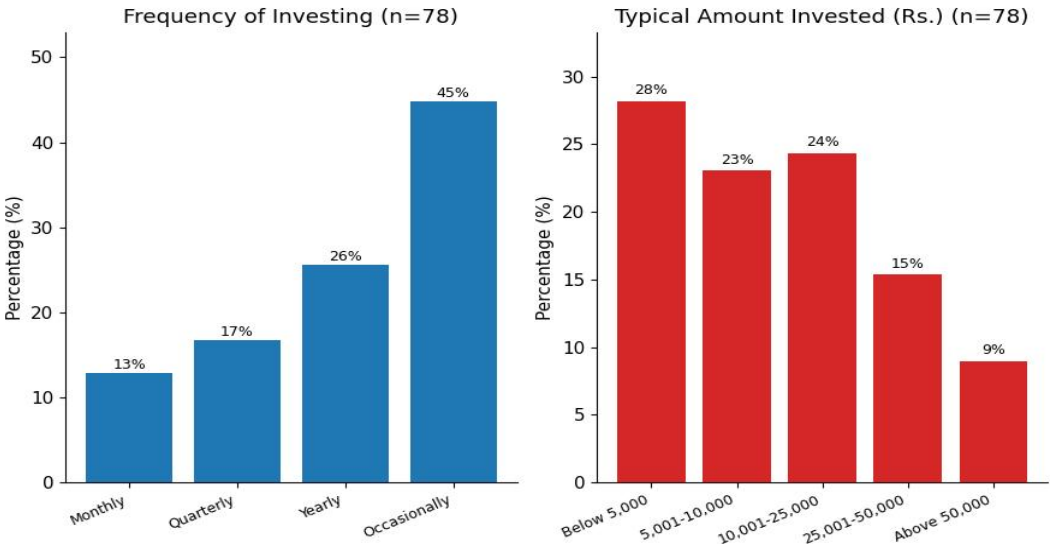


Figure 8: Frequency of investing and typical amount invested

8.3 Perceptions of Digital Gold

Table 3: Perceptions of Digital Gold (frequencies; SD = Strongly Disagree to SA = Strongly Agree)

No.	Statement	SD	D	N	A	SA	Mean	Agree %
Q11	Digital gold is convenient for investors	2	4	12	46	36	4.10	82%
Q12	Digital gold allows investment with a small amount	1	3	9	44	43	4.25	87%
Q13	Digital gold provides transparent live pricing	2	6	16	42	34	4.00	76%
Q14	Digital gold provides better liquidity	2	5	15	45	33	4.02	78%
Q15	Digital gold eliminates physical storage problems	1	4	10	41	44	4.23	85%
Q16	Digital gold makes buying and selling easier	2	5	13	45	35	4.06	80%
Q17	I trust digital platforms for buying/holding gold	6	14	29	35	16	3.41	51%
Q18	Digital gold is suitable for younger investors	1	3	10	42	44	4.25	86%
Q19	Digital gold involves platform/counterparty risks	2	6	18	44	30	3.94	74%
Q20	Concerned about regulatory and security risks	3	7	17	40	33	3.93	73%

Respondents are clearly positive about the practical benefits of digital gold. Agreement is highest for investing small amounts (87%), suitability for younger investors (86%) and no storage problems (85%), with mean scores of 4.25, 4.25 and 4.23. Trust is the weak point: only 51% trust digital platforms to buy and hold gold (mean 3.41), while 74% see platform and counterparty risk and 73% are concerned about regulatory and security risk.

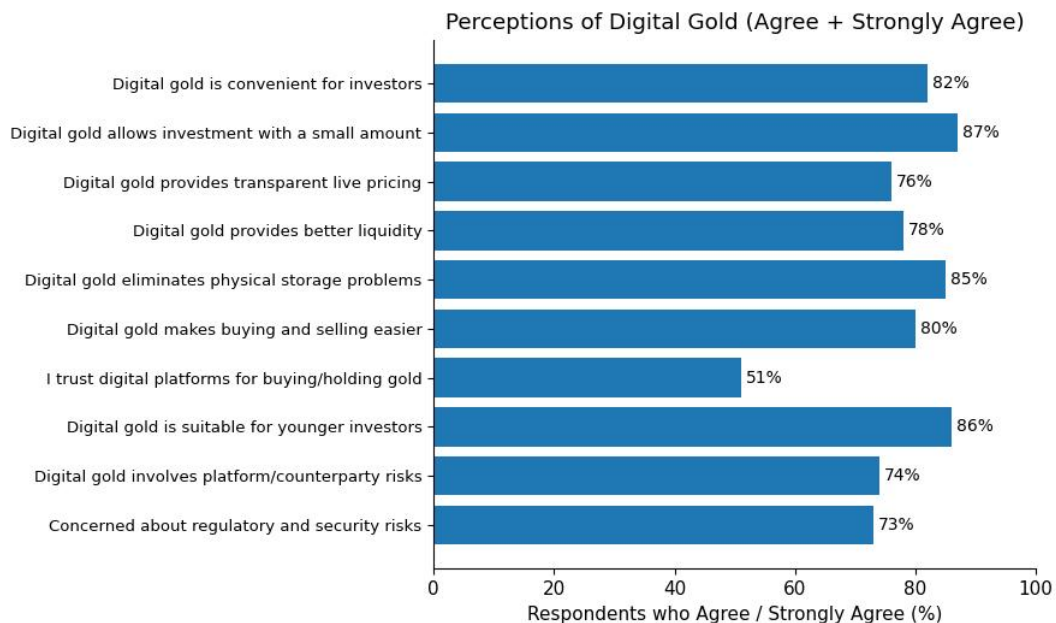


Figure 9: Agreement with statements on digital gold

8.4 Perceptions of Physical Gold

Table 4: Perceptions of Physical Gold (frequencies)

No.	Statement	SD	D	N	A	SA	Mean	Agree %
Q21	Physical gold gives a greater sense of ownership	2	6	14	38	40	4.08	78%
Q22	Physical gold has strong cultural importance	1	2	7	35	55	4.41	90%
Q23	Physical gold involves high making/transaction charges	2	5	12	43	38	4.10	81%

No.	Statement	SD	D	N	A	SA	Mean	Agree %
Q24	Storage and security costs make physical gold expensive	3	10	19	41	27	3.79	68%
Q25	Physical gold gives greater trust than digital gold	3	8	17	38	34	3.92	72%

Physical gold is valued mainly for its cultural and emotional role: 90% agree it has strong cultural and traditional importance (mean 4.41) and 78% say it gives a greater sense of ownership. At the same time, 81% agree that making and transaction charges are high and 68% that storage and security costs make it expensive. Even so, 72% believe physical gold offers more trust and security than digital gold.

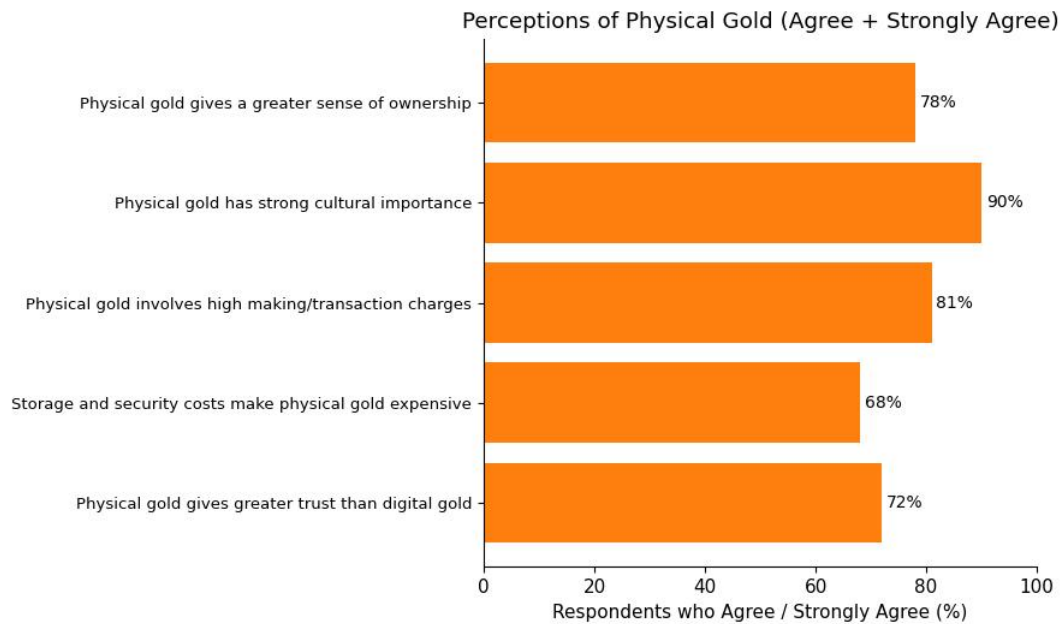


Figure 10: Agreement with statements on physical gold

8.5 Comparison and Preference

Table 5: Comparison and Preference Responses (n = 100)

Question	Response	Frequency	Percentage
Preferred format (Q26)	Physical gold	24	24%
	Digital gold	38	38%
	Both	31	31%
	Not sure	7	7%
Most important factor (Q27)	Cost	17	17%
	Safety	26	26%
	Liquidity	14	14%
	Purity	13	13%
	Convenience	18	18%
	Cultural value	12	12%
Age influences preference (Q28)	Yes	58	58%
	No	27	27%
	Not sure	15	15%

Question	Response	Frequency	Percentage
Digital knowledge influences choice (Q29)	Yes	64	64%
	No	21	21%
	Not sure	15	15%
Will increase digital gold (Q30)	Yes	47	47%
	No	17	17%
	Maybe	36	36%

Digital gold is the most preferred single format (38%), but 31% would hold both and 24% still choose physical gold. Safety (26%) and convenience (18%) are the leading factors in choosing, with cost at 17%. 58% say age influences their preference, 64% say their digital knowledge influences their choice, and 47% plan to increase their digital gold investment (a further 36% said maybe).

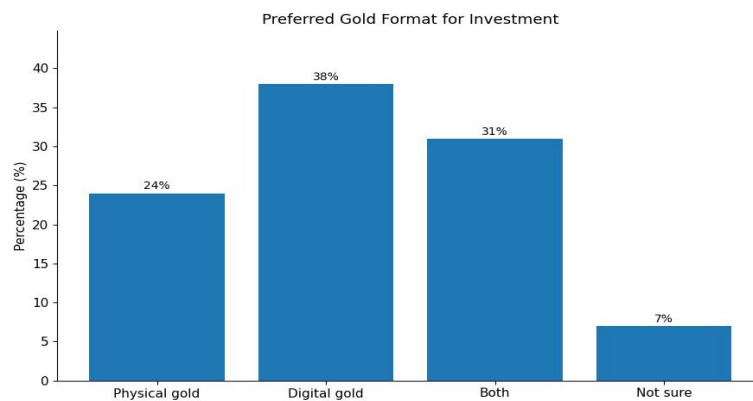


Figure 11: Preferred gold format for investment

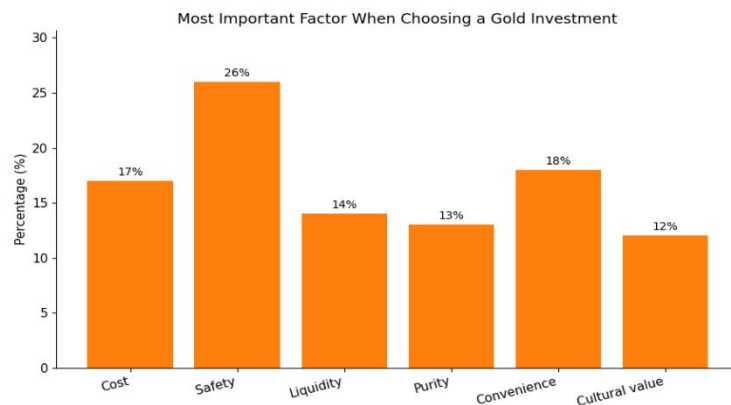


Figure 12: Most important factor when choosing a gold investment

Table 6: Preferred Gold Format by Age Group (frequencies)

Age group	Physical gold	Digital gold	Both	Not sure	Total
Below 25	4	17	11	2	34
26-35	5	13	11	2	31
36-45	6	5	6	1	18
46-55	5	2	3	1	11
Above 55	4	1	0	1	6
Total	24	38	31	7	100

Preference shifts clearly with age. Among respondents aged 35 or below, 46% prefer digital gold and 14% prefer physical gold; among those above 35,

only 23% prefer digital gold while 43% prefer physical gold. In the Above 55 group, 4 of 6 respondents prefer physical gold, but the group is too small to draw conclusions from.

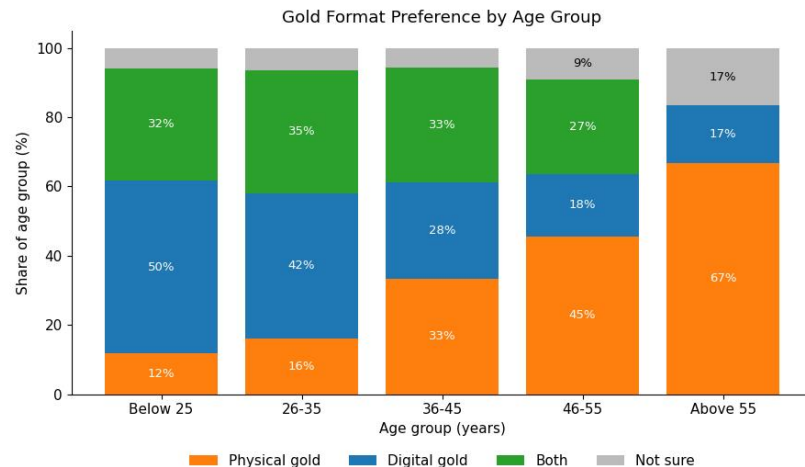


Figure 13: Gold format preference by age group

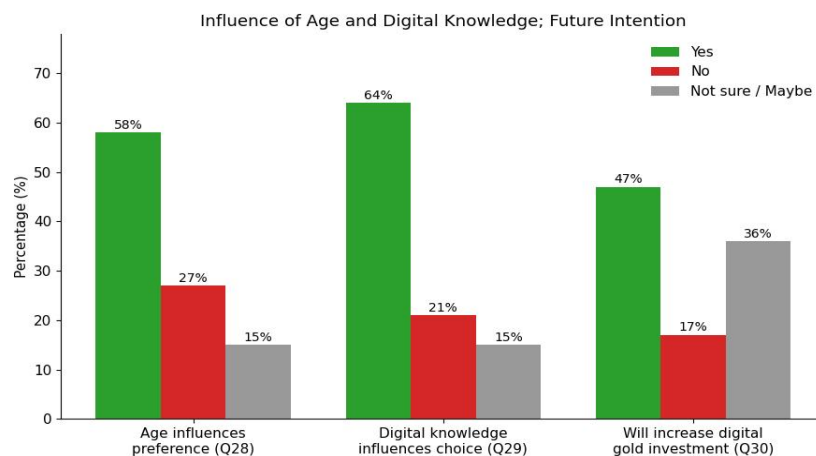


Figure 14: Influence of age and digital knowledge on choice, and intention to increase digital gold investment

8.6 Testing of Hypotheses

- **H1 (cost efficiency and net yields).** A survey cannot measure realised returns, so this hypothesis is judged through perceived cost drag. 81% agree that physical gold carries high making or transaction charges and 68% that storage and security make it expensive, while 85% agree that digital gold removes storage problems. This points towards H11, but it reflects perception, not return data. Confirming H11 would need a net-return comparison using actual buy and sell prices, making charges, GST and platform spreads.
- **H2 (demographic adoption).** The age cross-tabulation (Table 6) supports the direction of H12: younger respondents lean towards digital gold and older respondents towards physical gold. Several cells in Table 6 are small, so a chi-square test of independence should be run on the final data, once cell counts allow, before H12 is formally accepted.

9. Major Findings

- **Young, urban sample:** 65% of respondents are aged 35 or below and 83% live in urban or semi-urban areas, which should be kept in mind when reading the results.
- **Digital gold preferred, but not exclusively:** 38% prefer digital gold, 31% prefer to hold both and 24% prefer physical gold.
- **Strong functional advantages of digital gold:** Small-amount investing (87%), suitability for younger investors (86%), no storage problems (85%) and convenience (82%) draw the highest agreement.
- **Trust and risk are the main barrier:** Only 51% trust digital platforms, while 74% see counterparty risk and 73% worry about regulation and security.
- **Physical gold is a cultural asset:** 90% cite its cultural and traditional importance and 78% a stronger sense of ownership.
- **Cost drag on physical gold:** 81% agree making or transaction charges are high and 68% that storage and security costs are significant.
- **Age matters:** 46% of those aged 35 or below prefer digital gold, against 23% of older respondents.

- **Growth intent:** 47% plan to increase digital gold investment and 36% may do so.

10. Suggestions

- **Use a blended allocation:** Hold digital gold for flexible, small-ticket buying and physical gold for cultural, gifting and long-term security needs, instead of treating them as substitutes.
- **Compare total cost before buying:** Before comparing, add making charges, GST, storage and insurance for physical gold, and spreads and custody fees for digital gold.
- **Choose regulated, transparent platforms:** Prefer platforms that disclose who holds the vault, what insurance covers it and how reserves are audited, given the trust and counterparty concerns in the survey.
- **Strengthen regulation and disclosure:** Regulators and platforms should spell out how fintech digital gold is overseen and publish custody and redemption terms, so that investors feel more confident.
- **Build digital literacy for older and rural investors:** Simple onboarding and better awareness can open digital gold to groups that currently rely on physical gold.
- **Insist on hallmarked purity for physical gold:** Hallmarking and clear buy-back terms reduce the assaying and resale losses identified in the literature.

11. Conclusion

This study looked at digital and physical gold from the investor's point of view. Respondents see digital gold as more convenient, more liquid and available in small amounts. They see physical gold as culturally meaningful but costly to buy, store and protect. Younger investors are moving towards digital formats, while older investors stay with physical gold.

Trust is what holds digital gold back: people agree on its benefits, but their confidence in platforms is much lower. A mix of both formats, backed by clearer regulation and more transparent custody, is therefore the most practical way for households to protect their wealth over the long term.

12. Limitations and Scope for Future Research

The study is limited by its small sample ($n = 100$) and by convenience sampling, so the results may not represent the wider investor population; the respondents are also mostly young and urban. The findings rest on self-reported perceptions, not realised returns. Future research could compare the net returns of physical and digital gold using actual prices and charges over several holding periods, run inferential tests such as chi-square and ANOVA on larger samples, include Tier-2, Tier-3 and rural investors more fully, and look at custodial and regulatory risk in fintech digital gold platforms.

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